WHAT IS CLAIMED IS:

1. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture, comprising:

a filament extending from a first end of the closure device to a second end of the closure device;

an anchor for insertion through the tissue wall puncture attached to the filament at the second end of the closure device;

a sealing plug slidingly attached to the filament adjacent to the anchor;

an automatic driving mechanism for automatically tamping or cinching the sealing plug toward the second end upon withdrawal of the closure device from the internal tissue wall puncture.

2. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 1, further comprising a tamping tube disposed adjacent to the sealing plug; wherein the tamping tube is driven by the automatic driving mechanism to tamp the sealing plug.

3. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 2 wherein the automatic driving mechanism comprises a transducer for effecting a tamping force on the sealing plug upon withdrawal of the closure device from the tissue wall puncture.

4. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 3 wherein the transducer comprises:

a spool with a portion of the filament wound thereon;

a gear engaged with the spool;

a tamping tube driver directly or indirectly driven by the gear.

5. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 4 wherein the tamping tube driver comprises a flexible rack or a rigid tube slidingly disposed about the filament.

6. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 4 wherein the spool rotates and drives the gear, and the gear drives the tamping tube driver, when the anchor is deployed and the closure device is retracted from the tissue wall puncture.

7. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 4 wherein the gear comprises a gear train with a gear ratio of at least 2.5:1 with respect to the spool.

8. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 4 further comprising a torque limiting clutch disposed between the spool and the gear.

9. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 4 wherein the tamping tube driver is also the tamping tube.

10. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 3 wherein the transducer comprises an electronic switch at the proximal end of the closure device and a motor operatively connected to the electronic switch, wherein retraction of the closure device from the tissue wall puncture trips the electronic switch and activates the motor to generate the tamping force on the seal plug.

11. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 10 wherein the motor is a servo or solenoid that actuates a linear tamping force on the seal plug.

12. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 3 wherein the transducer comprises an optical sensor operatively connected to a motor for detecting or measuring withdrawal of the closure device from the tissue wall puncture and generating a signal upon withdrawal of the closure device from the tissue wall puncture.

13. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 12 wherein the signal generated by the optical sensor is transduced to an electrical signal activating the motor and generating the tamping force on the seal plug.

14. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture according to claim 1 wherein the filament extends at least partially back toward the proximal end and re-engages the seal plug.

15. A tissue puncture closure device for partial insertion into and sealing of an internal tissue wall puncture accessible through a percutaneous incision, wherein the closure device comprises a filament connected at a distal end to an anchor and to a sealing plug located proximal of the anchor for disposition and anchoring about the tissue wall puncture, wherein the improvement comprises:

means for automatically driving the sealing plug along the filament in a distal direction towards the anchor simultaneously upon withdrawal of the closure device from the tissue wall puncture.

16. A tissue closure device according to claim 15 wherein the means for automatically driving further comprises means for increasing linear velocity of a sealing plug driver relative to the linear velocity of withdrawal of the closure device.

17. A tissue closure device according to claim 15 wherein the means for automatic driving comprises means for transducing a motive force generated by retraction of a proximal end of the filament from the tissue closure device to a linear tamping force upon the sealing plug.

18. A tissue closure device according to claim 17 wherein the means for transducing comprises a spool around which the proximal end of the filament is wound and connected, and wherein retraction of the proximal end of the filament from the spool rotates the spool and generates a torsional motive force.

19. A tissue closure device according to claim 18 wherein the means for transducing comprises a mechanical gear train for transducing the torsional motive force generated by the spool to the linear tamping force upon the sealing plug.

20. A tissue closure device according to claim 19 wherein the mechanical gear train comprises a first gear integral with the spool, and a second gear engaged with the first gear and a tamping tube driver, wherein the torsional motive force of the spool drives the first gear, the second gear, and the tamping tube driver.

21. A tissue closure device according to claim 20, further comprising a gear ratio for increasing a linear velocity of the tamping tube driver relative to a linear velocity of withdrawal of the closure device.

22. A tissue closure device according to claim 20, further comprising a torque limiting clutch disposed between the spool and the first gear.

23. A tissue closure device according to claim 17 wherein the means for transducing comprises an electronic switch at the proximal end of the filament and coupled to a motor, wherein retraction of the filament from the closure device trips the electronic switch and activates the motor to tamp the sealing plug.

24. A tissue closure device according to claim 23 wherein the motor is a servo or solenoid.

25. A tissue closure device according to claim 17 wherein the means for transducing comprises an optical sensor operatively connected to a motor for detecting or measuring withdrawal of the closure device from the tissue wall puncture and generating a signal upon withdrawal of the closure device from the tissue wall puncture.

26. A tissue closure device according to claim 25 wherein the signal generated by the optical sensor is transduced to an electrical signal that activates the motor, wherein the motor generates the linear tamping force on the seal plug.

27. A tissue puncture closure device for partial insertion into and sealing of a tissue puncture in an internal tissue wall accessible through a percutaneous incision, comprising:

an anchor for disposition on a distal side of the internal tissue wall;

a sealing plug for disposition on a proximal side of the internal tissue wall;

a filament connected to and anchored at a distal end to the anchor and sealing plug for slidably cinching the anchor and sealing plug together about the tissue puncture, wherein the sealing plug is slidably disposed on the filament proximal to the anchor;

a tamping tube disposed on the filament for driving the sealing plug along the filament distally towards the anchor;

a storage spool onto which a proximal end of the filament is wound;

a first gear engaged with the storage spool;

wherein withdrawal of the closure device from the tissue puncture retracts the filament from the storage spool and actuates the first gear to directly or indirectly provide a tamping force to the tamping tube.

28. A tissue puncture closure device for partial insertion into and sealing of a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 27, further comprising a second gear engaging the first gear and a rack disposed about the filament, wherein actuation of the second gear drive drives the rack, and wherein the rack drives the tamping tube along the filament distally towards the anchor automatically upon withdrawal of the closure device from the tissue puncture.

29. A tissue puncture closure device for partial insertion into and sealing of a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 27, further comprising a torque limiting clutch disposed between the spool and the first gear.

30. A tissue puncture closure device for partial insertion into and sealing of a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 27 wherein the rack is integral with the tamping tube.

31. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision, comprising:

withdrawing a closure device from the tissue puncture;

automatically transducing a motive force generated by withdrawal of the closure device in a first direction to a cinching or tamping force in a second direction.

32. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 31, further comprising applying the tamping force in the second direction to a sealing plug.

33. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 32, further comprising transferring the motive force to a rack that is slidingly disposed about a filament, the filament being connected to the sealing plug.

34. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 33 wherein the transferring further comprises automatically unwinding the filament from a spool by deploying an anchor attached to the filament inside the tissue puncture, and withdrawing the closure device from the tissue puncture.

35. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 3 wherein the automatic unwinding of the filament from the spool comprises rotating the spool, and wherein spool rotation comprises the motive force.

36. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 35, wherein the transferring further comprises driving a gear train operatively connected to tamping tube with the spool.

37. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 35, further comprising limiting the transmission of torque with a torque limiting clutch disposed between the spool and a tamping tube.

38. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 31 wherein the motive force generated by withdrawal of the closure device from the tissue puncture is automatically transduced to the tamping force by an electronic or optical switch coupled to a motor.

39. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision, comprising:

providing a tissue puncture closure device comprising a filament connected at its distal end to an anchor and to a sealing plug located proximal of the anchor for disposition and anchoring about the tissue puncture;

inserting the tissue puncture closure into the percutaneous incision;

deploying the anchor into the tissue puncture;

withdrawing the closure device from the percutaneous;

automatically tamping the sealing plug toward the anchor end upon withdrawal of the closure device from the internal tissue wall puncture.